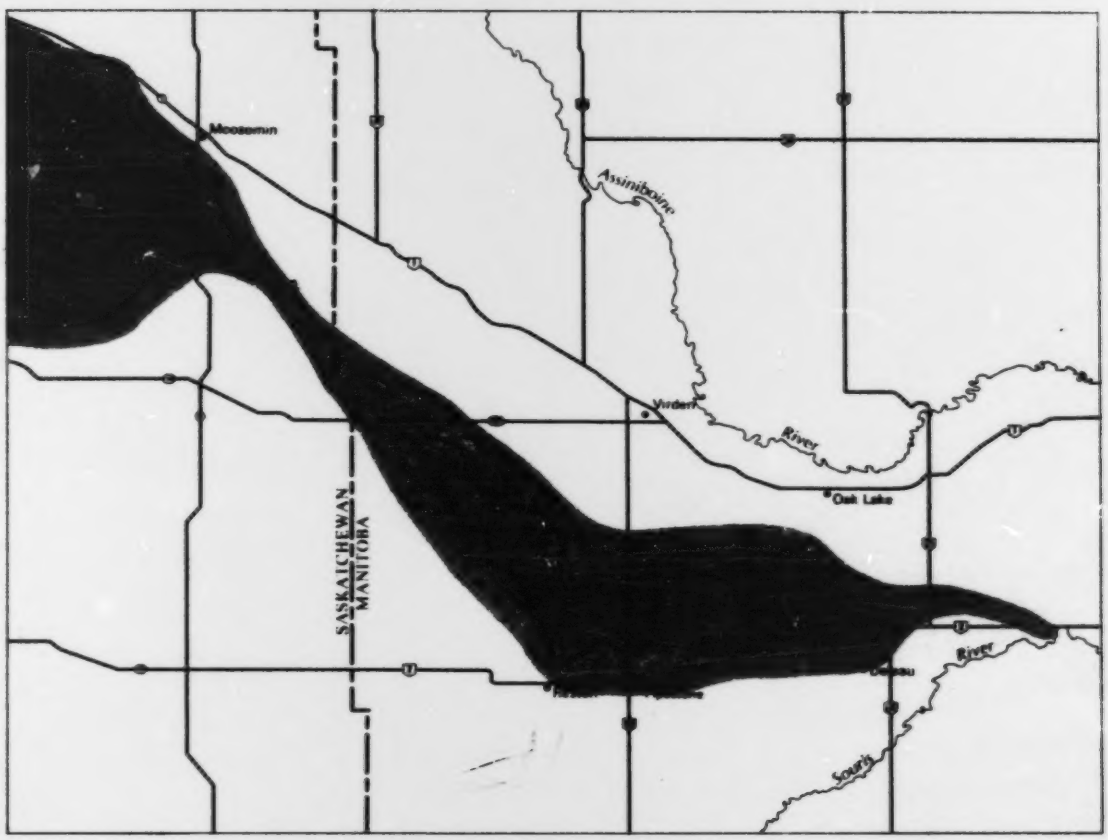
OAK AND PLUM LAKES STUDY

MAY 1983



Manitoba Water Commission

OAK AND PLUM LAKES STUDY

MANITOBA WATER COMMISSION

Telephone: 944-4482/83

THE MANITOBA WATER COMMISSION

847 — 405 Broadway Avenue
WINNIPEG, MANITOBA
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The Honourable A.H. Mackling,
Minister,
Department of Natural Resources,
Room 314,
Legislative Building,
Winnipeg, Manitoba.

Dear Sir:

The Manitoba Water Commission has the pleasure to present the report entitled "Oak and Plum Lakes Study".

In preparing this report the Manitoba Water Commission held hearings in Brandon on June 3, 1982; in Oak Lake on June 4, 1982 and in Winnipeg on June 22, 1982. In addition the Commission received assistance from the Water Resources Branch, Wildlife Branch, Parks Branch, Mapping and Surveys Branch, and the Department of Agriculture.

The Commission respectfully submits that the recommendations contained in this report will aid the Provincial Government in formulating a policy with respect to the management of the Oak and Plum Lakes area.

Yours respectfully,

D.A. Duncan,
Chairman

A. Anstett

J.J. Arnason

T. Ball

E. Nixon

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I. INTRODUCTION

People using the resources immediately adjacent to Oak and Plum lakes are in disagreement as to how the wetlands should be managed. The wildlife interests including hunting and fishing tend to oppose the views of some agricultural interests. However, this is not always true. Other concerns also come into the picture; including a concern over ground water levels and conservation of the habitat to encourage the growth of various wildlife populations. The majority of the interest groups tend to want either "high" or "low" water levels but the issues cannot be neatly divided into "high" and "low" water categories.

The Minister of Natural Resources has asked the Manitoba Water Commission to undertake a review of the management of the Oak and Plum Lakes. The Commission was directed by the Minister as follows:

> "The Commission, having regard to the needs of the various interests which are or may be affected by the levels of the Plum Lakes now and in the foreseeable future, will determine and recommend to the Minister an acceptable plan for the management of the water resources in the Plum Lakes area."

The entire terms of reference received by the Manitoba Water Commission are contained in Appendix A.

II. GEOGRAPHIC DESCRIPTION

(a) Drainage Area

Oak Lake is fed by Pipestone Creek which has its origin in the Moose Mountain region of southeastern Saskatchewan (see Introductory Map of Oak and Plum Lakes Wetland Complex page 3). By the time the creek reaches Oak Lake its flow has been modified considerably by man, a situation that creates many complications in the downstream regions.* The Oak and Plum lakes wetland complex is drained to the east through Plum Creek to the Souris River. Drainage over the whole region is very slow due to the flatness of the terrain.

Spring flooding is associated with the snowmelt over the whole drainage basin but can also be dramatically affected by conditions from the previous year and spring rainfall. The rainfall in the local area is primarily responsible for the variability of the water levels in the wetland complex in the summer months. The Oak and Plum lakes complex receives run-off from a very large area extending westward into Saskatchewan (see drainage basin as depicted on the frontispiece). It is important to note at the outset that the division between Oak Lake and Plum Lake has been accentuated by the Oak Lake Dyke which was constructed in 1964. Moreover, "Plum Lake" is not a clearly defined waterbody as is Oak Lake, but rather is a maze of interconnected marshes.

The present lakes are remnants of a larger lake that was left behind on top of the glacial till by the retreating glacier. As well all other lakes in southern Manitoba they have shown a steady decline in volume as the climate

* Waterways originating west of the Manitoba border come under an agreement administered by the Prairie Provinces Water Board. As such Canada and the Provinces of Manitoba, Saskatchewan and Alberta share the flow of eastward flowing interprovincial streams. Therefore, although water is modified, each province has some control over modifications that may affect it.

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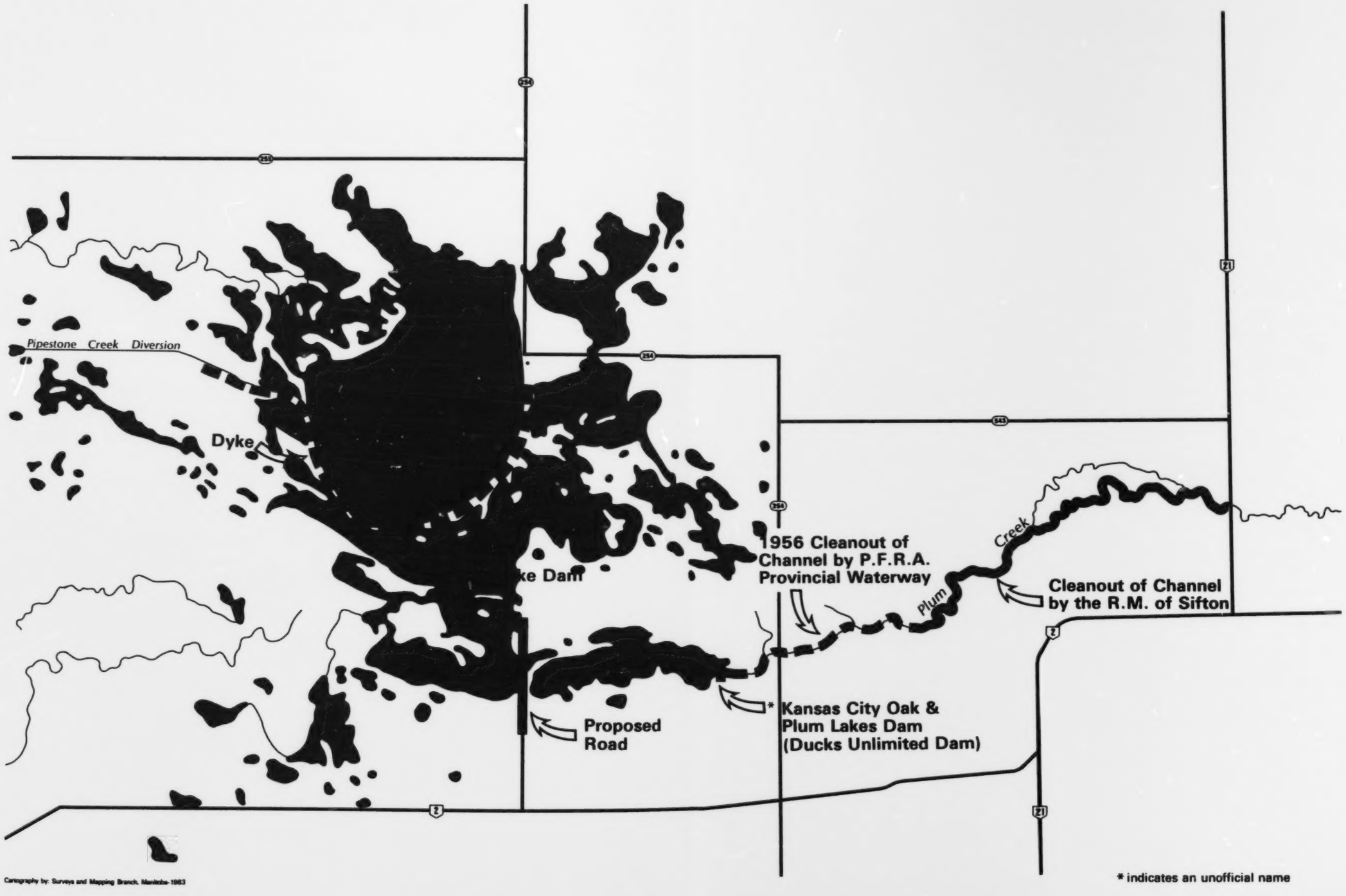


of the region has changed. The natural sequence for a lake is to gradually fill in as the drainage pattern establishes itself and sediments, aided by vegetation, proceed through eutrophication.

The surface geological map of Manitoba shows the Oak Lake region as being a proglacial* environment comprised of deep basin deposits of sand, silt and clay. This is manifested in the wide range of soil and land classifications that exist in the area.

The combination of the physical events has resulted in soils that are coarse to moderately coarse lacustrine sediments. These soils have a loamy, very fine, sand-surface texture with a moderate permeability and relatively slow surface run-off. The Pipestone soils to the west have less evidence of coarse textured material and are classified as black gleysolics that are weakly to moderately calcareous. A combination of a light clay surface and the level terrain again result in slow permeability and also slow surface run-off.

In the Oak Lake region the soils are more variable and as a result drainage is more variable. Low-lying depressional areas tend to drain very slowly while higher dune soils drain rapidly.

Hildebrand** has suggested that a subsurface lens of clay might exist to the south and west of the Plum Lakes and that this might account for waters being slow to drain. It has already been noted that the present lakes are remnants of a former larger lake, therefore it is quite reasonable to assume that the clay deposits of that lake would underlie the region. A study of this phenomena could possibly be determined by an examination of well drillers records supplemented by soil tests and other necessary methods, if it was

* An area of water, dammed up during a glacial period, usually between the edge of an ice sheet and some higher ground.

** Hildebrand, Wayne, Land Use Conflicts in the Plum Lakes Area of Southwestern Manitoba, Natural Resource Institute, University of Manitoba, Winnipeg, April, 1982.

essential to resolving the problems of the area. The combination of glacial deposits and lake deposits in the Oak and Plum lakes area and their potential for agricultural use are reflected in the land capabilities range from Limited (Class 4) to Severly Limited (Class 6). These classifications will be considered later in this report.

(b) Climatology

The prairie region of Canada extends from the foothills of the Rockies in Alberta to the Canadian Shield in eastern Manitoba. Although this region is generally considered to be one climatological area there are considerable variations from east to west and from north to south. Similarly, as most prairie residents are aware, the patterns of climate, and in particular precipitation, can be variable over relatively short distances. These variations are interesting but not of concern in this report; however the variations of climate over time are of great significance because they tend to determine whether there will be too little or too much water for the numerous requirements and activities in the Oak Lake and Plum Lakes region.

The general trend of precipitation for Manitoba shows a long term overall increase from approximately 1910 to the present. Within this period of time there have been shorter fluctuations that have been noted by many residents of the Oak Lake area, but also appear to have created different problems and different demands for remedial action. Generally, in dry times, such as from 1930 to 1950 and the decade from 1958 to 1968, the demands are for higher water levels. In the wetter periods, such as the decade from 1968 to 1978, the demand is for reduction in levels.

During the last approximately seven years there has been a great variability in all elements of climate, with extremes of temperature, barometric pressure, and precipitation being recorded. As a result the levels of water in the lakes have shown a great deal of fluctuation, that have served to underline the problems that the various groups in the area experience with extreme conditions.

The general pattern of climate in Manitoba is classified under the Koeppen system as Db*. The D identifies a climate that is microthermal with the average temperature of the warmest month above 50°F (10°C) and the coldest month below 27°F (-2.8°C). The b indicates that the mean temperature of the warmest month is below 72°F (22.2°C) while four of the summer months have mean temperatures above 50°F (10.0°C). At Brandon, the closest long term climatological record, the mean annual temperature is 36°F (2.2°C) with an extreme low record of -52°F (-46.7°C) and an extreme high of 110°F (43.3°C).

The mean annual precipitation map for the prairie region shows the area west of Brandon with a mean total of approximately 19 inches (482 mm), which suggests a relatively dry regime. A more important measure for the purposes of this report is the effectiveness of that precipitation for agricultural purposes. This is best depicted by the measurement of the average potential evapotranspiration, which is a measure of the total moisture loss to the atmosphere through evaporation, or transpiration through plants, and the average moisture deficit which Longley** has calculated for the prairies,

* The Koeppen system classifies the world into climatic regions based upon temperature and precipitation and their effectiveness in determining general plant species of that region. It is assumed that the plants of a region are a response to the climate. For example the treeline in Northern Canada is coincident with the 50°F (10°C) summer isotherm.

** Longley, R.W., The Climate of the Prairie Provinces, Climatological Study No. 13, Environment Services, Toronto, 1972.

assuming a normal soil moisture capacity of 4 inches (102 mm). His calculations show that the average annual potential evapotranspiration for the Oak Lake area in the period from 1921 to 1950 was 22 inches (560 mm). This means that on average if 18 inches (457 mm) of precipitation falls during the growing season it will, in combination with the soil moisture, provide sufficient moisture for all plant needs. Over the period from 1921 to 1950, the Oak Lake area had an average annual deficit of 6 inches (152 mm). This is to be expected due to the extremely dry conditions of the 1930's. The data for Brandon shows a mean annual precipitation of 19 inches (476 mm) and a deficit of 6 inches (143 mm) over the same period. Although there is a slight difference in the annual precipitation between Brandon and Oak Lake, the deficit was essentially the same suggesting that on a larger scale the Brandon figures can be used as being representative of the Oak Lake area.

The above information may be summarized in a slightly different fashion by stating that soil characteristics and climatic conditions give rise to a particular type of vegetation. For the area under study in this report, the wetland type of vegetation makes it particularly suited for prairie wildlife habitat, and some agricultural activity.

III. BACKGROUND AND CURRENT SITUATION

The lower reaches of the Pipestone Creek and the Oak and Plum lakes were subject to serious flooding periodically from 1947 to 1955. A total of 15,000 to 20,000 acres (6,000 to 8,000 hectares) were flooded in 1954 and 1955. Flood prevention works in and along Pipestone Creek were carried out in 1956 by Prairie Farm Rehabilitation Administration (PFRA). These works included the construction of dykes and cut-offs and the cleaning out of portions of the Pipestone Creek. Approximately 4 miles (6.5 kilometers) of the uppermost end of Plum Creek were also cleaned out. The work undertaken on Plum Creek was intended to limit the maximum level of Oak and Plum lakes to an elevation of 1410.0 feet (429.77 meters).

Realizing the vast potential of the Oak and Plum Lakes system as a waterfowl breeding area, Ducks Unlimited (Canada) constructed the Kansas City Oak and Plum Dam at the outlet of Plum Lake (in Section 35-7-24 WPM) in 1956. The full supply level of this dam is 1407.86 feet (429.12 meters). The discharge capacity of the dam is much greater than the discharge capacity of Plum Creek. Therefore, the dam does not and never has determined the outflow from Plum Lake. Even during extremely low water levels, water can pass through the dam unrestricted. The carrying capacity of Plum Creek below the Kansas City Oak and Plum Dam is the limiting factor in restricting outflow from the wetland complex. This dam is called the "Ducks Unlimited Dam" by the local residents.

Some farmers bordering Plum Lake were opposed to the operation of the dam. As a result, Ducks Unlimited were unable to obtain all the flood easements required to operate the dam and consequently the dam has not been operated.

In 1964, the Water Control and Conservation Branch (Water Resources Branch) completed construction of a 200-foot (60-meter) wide dam, with a fixed crest elevation of 1410.0 feet (429.77 meters), at the outlet of Oak Lake.

It was intended that this dam ensure a range of levels on Oak Lake which would be generally acceptable for recreational purposes.

In the mid-sixties due to increased precipitation there was a return to higher water levels. High inflows coupled with inadequate channel capacity on Plum Creek resulted in high water levels on Plum Lake. From 1963 to 1966 the water level rose from 1403.0 feet (427.63 meters) to 1409.51 feet (429.62 meters). As a result there were complaints by the Rural Municipality of Sifton, urging the Water Control and Conservation Branch (Water Resources Branch) to do something immediately with the water situation south and east of the Oak Lake Dam and strongly endorsing the idea of ditching and dredging Plum Creek to allow the water to more quickly enter the Souris River near the town of Souris.

In August 1967, a report entitled Plum Lake Study examined alternative flood control schemes. After consultation with the people in the Plum Lake area, it was felt that from an agricultural point of view the desirable mean level for June was 1407.0 feet (428.86 meters), although higher water levels are tolerable in the spring and even desirable. At the time of the report the mean level in June exceeded 1407.0 feet (428.86 meters) in two years out of three.

It was decided that because the two main interest groups, namely agriculture and wildlife, have different needs that, before a decision could be made regarding the advisability and extent of improvements in Plum Lake and Plum Creek, there would need to be a list of priorities. A study was initiated to determine the effect of regulating the Kansas City Oak and Plum Dam with a full supply level (f.s.l.) of 1407.0 feet (428.86 meters) and whether a full supply level above 1406.0 feet (428.55 meters) would be detrimental to the ranching interests.

Subsequently, the Plum Lakes Study Committee was formed with a representation from the Department of Mines, Resources and Environmental Management, and the Department of Agriculture in recognition by these agencies

of the complexity of the problem regarding Plum Lake regulation. After holding meetings with local municipal councillors and various interest groups and circulating questionnaires to establish views of all concerned, the Committee submitted a report to the Water Resources Branch in May 1971. The report was reviewed at a local meeting and revised in March 1972. This report was entitled Plum Lakes Study Committee Revised Report on Plum Lakes Regulation Study.

The underlying objective of the above study (1972) was to determine a method to control the water levels of the Plum Lakes that would provide maximum economic benefit to Manitoba. In order to accomplish this it was recommended that improvements be made to the Kansas City Oak and Plum Dam to accommodate a control level of 1409.0 feet (429.46 meters) on Plum Lakes and that peripheral land above the dam and below the elevation 1411.0 feet (430.07 meters) be purchased. This would involve approximately 16,600 acres (6,700 hectares). It was recommended that the uppermost reach of the Plum Creek channel be improved to its 1956 condition (approximately 4 miles or 6.5 kilometers). It was recommended that the Plum Creek channel improvements should not be undertaken until the dam was modified and in operation in order to prevent extensive damage to the wildlife resource.

In the spring of 1973, the Water Resources Branch was asked to undertake the development of the Plum Lakes project and a Federal-Provincial Planning Committee was formed. The committee consisted of representatives from the Canadian Wildlife Service, Manitoba Resources Management Division, and the Water Resources Branch. The Committee was formed to review the benefit-cost report and recommend a water level regime, devise a development plan, prepare a management plan, and prepare a public document. The result of the review of the benefit-cost study was selection of the regime that calls for a water level of 1409.0 feet (429.46 meters) at the Kansas City Oak and Plum Dam, with Plum

Creek improved below the dam to the 1956 conditions. This regime was outlined in a 1975 report entitled A Proposal for the Development and Management of Plum Lakes. To optimize the resource potential of the area the following recommendations were made in the report:

The project be developed under joint Federal-Provincial cost-sharing and management. A 75:25 federal-provincial funding ratio is recommended for the remainder of the project.

All private lands below elevation 1411.0 feet (430.07 meters) (approximately 16,600 acres or 6,700 hectares) be purchased and held in trust.

After land acquisition is complete, suitable control works be constructed to manage water levels for the benefits of wildlife including waterfowl and muskrats.

To maximize resource benefits Plum Lakes should be controlled at 1409.0 feet (427.46 meters).

A Management Authority to be formed consisting of representatives from Chief of Wildlife Programs, Operational Policy Division, Department of Renewable Resources and Transportation Services and the Regional Director, Canadian Wildlife Service, Western Region.

The Management Authority appoint a suitable Directorate.

Regional Administration be responsible for assistance and direction.

A Resident Manager be appointed to supervise the implementation of management plans.

The area should be named the Plum Lakes Cooperative Management Area.

The Wildlife Management Area be established upon the completion of the land acquisition.

The reasons for these 1975 recommendations were:

1. The Federal-Provincial Planning Committee concurred with the Plum Lakes Study Committee which stated in March 1972 that this proposal provided the greatest overall benefits. This is especially the case in view of federal interest in sharing in the funding and management of the project at that water level.
2. Benefits from this proposal can be increased further by maximizing wildlife production on Plum Lakes, a matter of primary importance to both the province of Manitoba and the Canadian Wildlife Service.
3. Under this proposal optimum resource benefits result. An increase in agricultural benefits below the dam will nearly balance agricultural losses above the dam. The net benefits of this proposal therefore accrue to the wildlife resource.

The Provincial Government approved this scheme in 1975, but approval in principle was withdrawn in 1977 and the contract was not signed because an agreement was not reached on cost-sharing with the federal government.

The Rural Municipality of Sifton passed two resolutions concerning the area in 1981.

In January 1981 the council requested that the Water Resources Branch upgrade the Plum Creek channel running through the NE¼ section 31-7-24W by cleaning and straightening to allow the water to flow at the same capacity as is possible where the improvements were made downstream. These improvements had been undertaken by the Rural Municipality of Sifton in the fall of 1976 and the spring of 1977. Water Resources Branch turned down this request.

Also, in 1981 the Rural Municipality of Sifton resolved to construct a road east of Section 30 and 31-7-24W to provide access to local hay leases on Crown land. Water Resources Branch gave approval for construction of the

road in April 1981. There was a condition attached that the road must not impede the natural flow of water in Plum Lakes or Plum Creek and also that the Council acknowledge the fact that portions of the road will be submerged on frequent occasions and no action may be taken to prevent submergence of the road by either lowering the lake level or raising the road. In November 1982 construction was still occurring on this road.

The conflicting water-related interests of the concerned parties in 1981 resulted in a new series of public meetings, held in 1982 and from which this report has evolved.

IV. PUBLIC HEARINGS

The Manitoba Water Commission held hearings to allow interested parties an opportunity to express their views on the management of the Oak and Plum lakes. These hearings were held at Brandon on June 3, 1982; at Oak Lake on June 4, 1982 and at Winnipeg on June 22, 1982.

Representatives from organized groups and individuals presented briefs at the hearings. They were as follows:

Brandon Hearing:

1. Dr. Roger Smith
2. Mr. Cecil Huff, Oak Lake Cottage Owners Association
3. Mr. Leonard Logeot
4. Mr. Rod Fowler, Ducks Unlimited (Canada)
5. Mr. Conrad McClure, Brandon Wildlife Association

Oak Lake Hearing:

1. Mr. C.O. Meighen and Mr. Leonard Logeot, Water Table Preservation Association
2. Mr. Victor Logeot
3. Mr. Robert Masson, Oak Lake Trappers Association
4. Mr. Garfield Jasper, Reeve, Rural Municipality of Sifton
5. Mr. Philip Francis
6. Mr. Blaine Cannind
7. Mr. Lloyd Hatch

Winnipeg Hearing:

1. Mr. Don Glays, Manitoba Wildlife Federation
2. Mr. Lloyd Atchison, Tri-Lakes Agricultural Co-op
3. Mr. Robert Masson
4. Mr. Lloyd Mayeda, Nature Conservancy of Canada
5. Mr. Pat Rakowski, Canadian Wildlife Service
6. Mr. Philip Francis
7. Mr. Ross Gabirelle
8. Mr. Wayne Neily, Manitoba Naturalists Society

Several presentations were made to the Commission. Many submissions made reference to the value of the area for wildlife as a nesting and staging area for ducks and an area for other wildlife. Its value for research and education was outlined and emphasized by pointing out that Brandon University has a research station in the area which could serve as a focal point for these activities.

Some points were raised in more than one brief. Many presentations contained the suggestion that a board or management group should be set up to manage the Oak and Plum Lakes area. The suggestions for the make up of this board were varied. Some wanted the group to be made up of local interest groups, others said that it should not have totally local representation but should have a broader scope.

Several briefs made reference to the need for contour maps to determine the extent of flooding at each lake level; others suggested that soil studies and hydrology studies were necessary. There was reference to farmers who were dependent on the native grass in the area. The point was also made that farmers want to remain on their land and may not want to move even with fair compensation for their land. Agriculture should come above all was the opinion of one farmer.

Some briefs pointed to soil salinity as a problem. Some speakers were of the opinion that easements should be obtained from farmers whose land was prone to flooding and that dykes be built for residents who oppose the scheme.

In some instances it was stated that no more man-made projects should be undertaken. However, others were of the opinion that some management is necessary because intervention has already occurred above and below Plum Lakes.

The term "flooding" was a contentious one, as what is a reasonable managed water level to some is flooding to others.

Appendix B contains key extracts from the public hearings. These quotes illustrate the range of interests of those presenting briefs. They are abstracted to illustrate the concerns expressed to the Commission.

V. CURRENT USE AND POTENTIAL USES OF THE AREA

a) Recreational Uses

Private cottage development is restricted to Oak Lake proper and occurs only at two sites, namely Oak Lake Beach and Cherry Point Beach. With the development of these cottage areas, there are associated inter-related activities including boating, water-skiing, swimming, fishing and observation of wildlife.

The Department of Natural Resources (Parks Branch) has a well used picnic area and public beach adjacent to the private cottage subdivision on the east side of Oak Lake. Nearby there is a public dock and boat launching facility. Also on the east shore of Oak Lake is a large marina, which is privately operated. Cherry Point on the northeast side of Oak Lake is a cottage development that is smaller than the one on the east shore and lacks the quality beaches of that location.

b) Wildlife Uses

(i) Oak Lake Fishery

The Oak Lake Fishery is a valuable resource utilized by hundreds of people in a single day when the fish are abundant. In addition to spring, summer and autumn angling, Oak Lake has a long tradition for its winter fishery. Table 1 shows that there were several Master Angler awards between 1975 and 1977, a time of good water levels for fish. The lack of Master Angler awards between 1961 and 1974 inclusive, was due to several factors. Some of these include extreme drought, winterkill, little or no restocking most years,

and heavy use of the fishery as it attempted to build, thereby preventing the fish to reach a size large enough for Master Angler awards.

The Oak Lake fishery suffered from winterkill in 1978/79, 1979/80 and 1980/81. As the figures show in Table 1, the master angler awards dropped in 1978 and fell to nil in subsequent years with the deterioration of the fish population. Without restocking, the lake takes many years to recover from winterkill and the impact of prolonged low water levels.

In 1981/82 the efforts of local volunteers prevented winterkill. Some restocking was done of the lake in the spring of 1982. Nine hundred adult pike and 10,000 walleye fry were released into the lake. This is a small number considering the size of the lake.

Current concerns relating to the fishery include the nutrient loading of the lake. Soil erosion and rapid runoff of water from cultivated fields within the drainage basin result in nutrients being carried into Oak Lake. The fertilizer-associated nutrients stimulate the growth of aquatic plants. As plants require oxygen to grow, the increased plant growth results in an increase in the competition with the fish for the oxygen in the water. A shortage of oxygen for fish means a subsequent winterkill of fish, particularly if water levels are shallow.

Another concern regarding the fishery is related to the culverts installed beneath the newly constructed municipal road that allows water to pass between the Plum Lakes. There is concern that if the road were to be increased in height, without increasing the size and number of culverts, that this would be detrimental to the fishery. The small culverts would result in high speed water movement, too fast to allow fish movement.

The Oak Lake fishery is important to the people in southwestern Manitoba, as there is very little in the way of alternative sites for those who are interested in fishing.* Therefore, there is concern that the loss of this fishery would deprive not only the cottage owners of the area but all southwestern Manitobans of a recreational use.

* Personal Communication, Mr. Bill Howard, Fisheries Manager (Brandon).

TABLE 1

MASTER ANGLER AWARDS - OAK LAKE

YEAR	FISH SPECIES			
	Perch	Northern Pike	Walleye	Total
1975	12	1	0	13
1976	55	5	0	60
1977	276	6	0	282
1978	10	0	0	10
1979	0	0	0	0
1980	0	0	0	0
1981	0	0	0	0

(ii) Waterfowl

The Oak and Plum lakes area is of extremely high value to wildlife populations. Southwestern Manitoba contains the best waterfowl production habitat in the province. After examination of Canada Land Inventory maps, the Wildlife Branch reports that 750,000 acres (303,500 hectares) within a 50 mile (80 kilometer) radius of the Oak and Plum lakes wetlands complex has "slight to no" limitations for waterfowl production. The Oak and Plum Lake Cooperative Wildlife area as proposed and defined in 1975* has "slight to very slight" limitations. Table 2 demonstrates that the area has a high potential for waterfowl production and does not have a high potential for agriculture.

This area has twice the value of the famous Delta Marshes, based on brood count per shoreline mile.** The area is also valuable for molting and countless thousands of ducks, coots and some geese spend their flightless weeks there during the summer.

Loss of these marshes would reduce productivity of adjacent areas because the birds from surrounding areas tend to concentrate in the Oak and Plum lakes marshes. Additionally the wetland complex attracts molting waterfowl that breed outside the local area and is a very important fall staging area for ducks and geese. Some autumns nearly all the white-fronted geese passing through Manitoba stop at Oak and Plum lakes and combined waterfowl figures exceeding 100,000 have been recorded. The Oak and Plum lakes area had higher numbers of birds tallied in 1972 and 1973 than any other marsh in the southwest portion of Manitoba.***

* Department of Renewable Resources and Transportation Services, Plum Lakes, A Proposal for the Development and Management, revised September 1975.

** Mr. L. Colpitts, Wildlife Branch.

*** Mr. L. Colpitts, Wildlife Branch.

TABLE 2

A COMPARISON* OF CAPABILITY RATINGS FOR AGRICULTURAL, WATERFOWL AND UNGULATE USE OF THE OAK AND PLUM LAKES CO-OPERATIVE WILDLIFE AREA**

	Agriculture			Waterfowl			Ungulates***		
	Acres	(Hectares)	%	Acres	(Hectares)	%	Acres	(Hectares)	%
Class 1									
Class 2	800	(324)	2.1	17,000	(6,880)	45.3	500	(202)	1.3
Class 3				10,240	(4,144)	27.3	710	(287)	1.9
Class 4	7,200	(2,914)	19.2	5,490	(2,222)	14.6	1,920	(777)	5.1
Class 5	4,320	(1,748)	11.5	2,340	(947)	6.2			
Class 6	6,080	(2,461)	16.1	2,340	(947)	6.2	24,020	(9,721)	64.1
Class 7	19,100	(7,730)	50.9	90	(36)	.2	10,350	(4,189)	27.6

TOTAL AREA 37,500 acres (15,200 hectares)

* The acreages shown indicate the suitability for agriculture, waterfowl and ungulates, as defined in the Canada Land Inventory Program. Direct comparison is not possible because of the different classification systems. However, the classifications do suggest that agricultural land has approximately 78.5% of its terrain in the three poorest categories, waterfowl 72.6% in the three best categories and ungulates 91.7% in the three poorest categories. It would appear therefore that a majority of the area is more suited to waterfowl than either agriculture or ungulates.

** This area was defined in a report published September 1975 by the Manitoba Department of Renewable Resources and Transportation Services and entitled A Proposal for the Development and Management - Plum Lakes.

*** Ungulates in this area refers to white-tailed deer.

(iii) Colonial-nesting Birds

When habitat conditions are ideal, it is doubtful that any wetland complex in southern Manitoba is as productive for colonial-nesting species as the Oak and Plum lakes wetlands. The principal species involved are Franklin's gull, eared grebe and black-crowned night heron. Some years the Franklin's gull colony has stretched nearly two kilometers with nests every few meters. The value of these gulls to the local agricultural community in controlling insect pests is immense.

(iv) Furbearing Animals

Data shows that the Oak and Plum lakes area has a history of good production of furbearers, primarily muskrat but also beaver, mink and fox. Management of the water levels in the area could further enhance production.

As a result of the overharvesting of muskrat, a special trapping area was designated. The area is divided into 26 traplines. This system maximizes the harvest of muskrats.

Trapping in the local area enhances the income of several people - resident and non-resident, farmer and non-farmer, Caucasian and Indian.

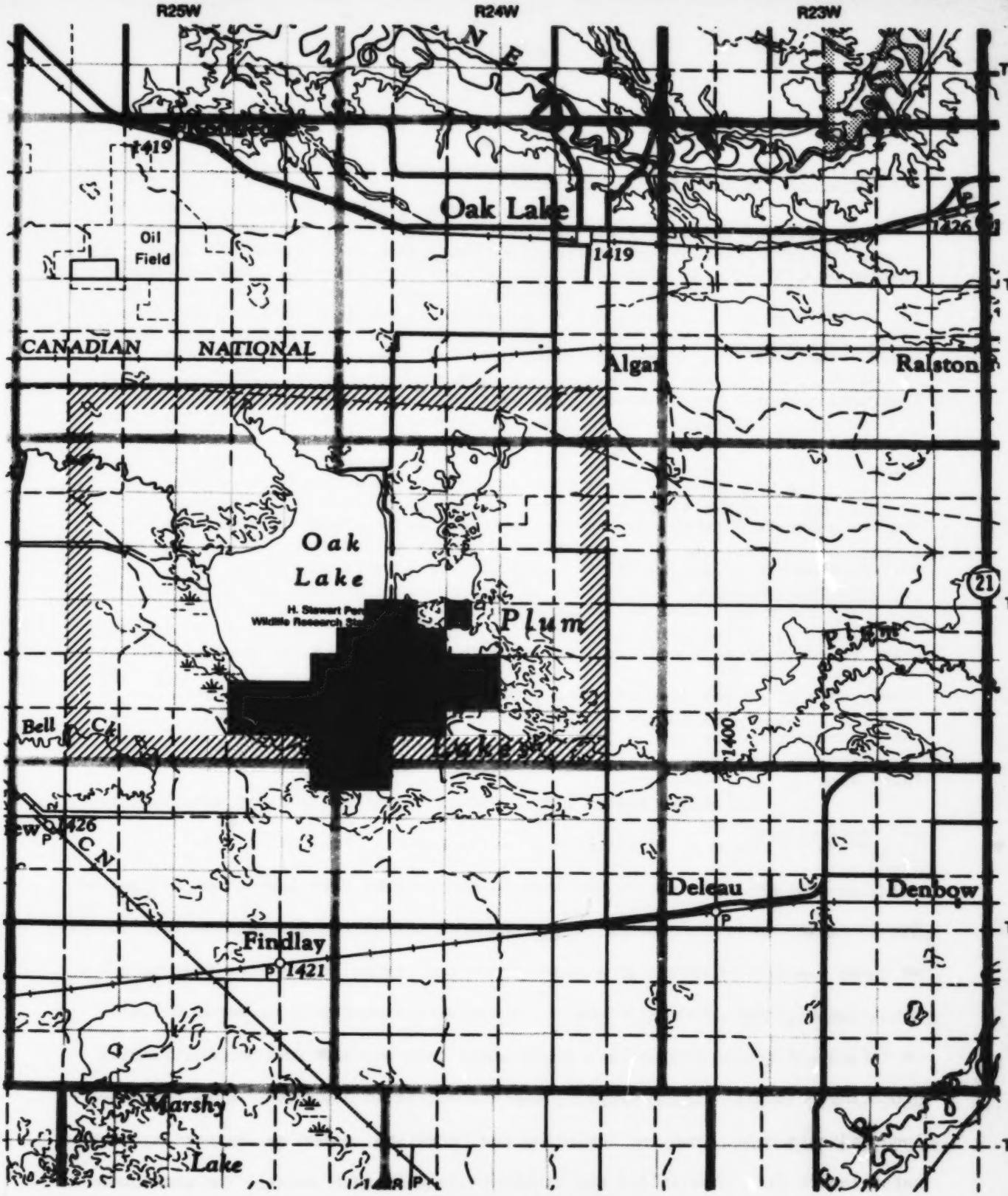
The trappers, many of them local farmers, are organized into the Oak Lake Trappers Association and recommendations from their brief are given in the submission by Mr. Robert Masson on page 5 of Appendix B.

(v) Waterfowl Hunting

In comparison to other major wetland complexes in Manitoba relatively little hunting occurs in the Oak and Plum lakes area because much of the Crown land has been declared a bird refuge. There is also a Canada goose refuge surrounding the bird sanctuary. Significant amounts of terrain are also

owned by hunting interests, thus further restricting hunting by the general public.

Figure 1 depicts the two types of refuges.



Oak Lake Game Bird Refuge and Oak Lake Special Canada Goose Refuge

Oak Lake Game Bird Refuge

Oak Lake Special Canada Goose Refuge

Cartography by: Surveys and Mapping Branch, Manitoba 1983

FIGURE 1:

(c) Research and Nature Interpretation

Brandon University set up the H. Stewart Perdue Wildlife Research Station in 1969. It is located between Oak and Plum lakes as shown on Figure 1. It has been used to undertake very limited research on both Oak and Plum lakes. The facility, as well as being used for research, is also used as an instruction centre for students. The marshes provide a valuable source for practical application of research work undertaken by students.

The Oak and Plum lakes wetlands complex is within a few kilometers of the Trans-Canada Highway and thus lends itself as a splendid area in which to introduce people to nature and in particular to a marsh ecology.

There are Canadian wetlands, such as Oak Hammock in Manitoba, Point Pelee in Ontario and Cape Tourmente in Quebec, which attract hundreds of people on a given day just to appreciate nature. Being so ideally situated the opportunities for nature interpretation are immense in the Oak and Plum lakes area.

(d) Agriculture

Agricultural use of the land in the Oak and Plum lakes area is limited. Examining Canada Land Inventory maps, the soil capability in the area is classified as Class 4 and 5. Class 4 is defined as having severe limitations that restrict the range of crops or require special conservation practices or both. Class 5 is defined as having very severe limitations that restrict the capability of producing perennial forage crops. Subclassifications associated with the above land indicate other problems including low fertility, moisture limitation, excess water (apart from inundation) and stoniness in different areas. The stoniness subclassification is not applicable in this area which is stone free. There-

fore, cattle ranching and hay production are the most common agricultural activities in the Oak Lake area, although the hay is not of good quality in the immediate vicinity of the water line.

The location of Crown land is indicated in Figure 3. This figure also indicates the type of leasing arrangement on the Crown land. There are three types of leases; forage leases, renewable hay permits, and casual hay permits. Forage leases are contracts that expire when the lessee turns 65 years of age. Renewable hay permits are awarded annually. The person who held the permit in the previous year is given first option to renew. Casual hay permits are also awarded annually. However the lessee can change from year to year. As a result of the Crown land being leased, information regarding the amount of hay removed from the land is available. This information is provided in Table 3. Water levels for the corresponding years are given in Table 4.

Examination of the water levels and hay yields in Figure 2, which graphically displays the information in Tables 3 and 4, suggests that when water levels are high hay yield is low in and around wetlands.

The local farming community is divided over the merits of the hay produced in the marshes. One faction desires sufficient water in the marshes to produce lush growth of grasses on the upland meadows adjacent to and between the maze of waterbodies. This group is prepared to sacrifice the hay that would be produced in the dry marsh bottoms. They claim that the grasses growing on the higher elevations are of a finer texture and significantly better nutrient value than the coarse grasses and alkaline weeds produced in the marsh bottoms when water levels are low. Surveys conducted by agricultural specialists would tend to support this faction.

TABLE 3

HAY YIELD - CROWN LANDS - OAK LAKE AREA

year	tons*	number of metric tons
1977	832	(917)
1978	1089	(1200)
1979	901	(993)
1980	1162	(1280)
1981	1640	(1808)

* Figures received from Department of Agriculture, Agricultural Crown Lands Section.

TABLE 4

AVERAGE MONTHLY WATER LEVEL - OAK LAKE **

	APRIL		MAY	
	FEET	(METERS)	FEET	(METERS)
1977	1410.05	(429.78)	1409.98	(429.76)
1978	1409.77	(429.70)	1410.12	(429.80)
1979				
1980	1409.25	(429.54)	1409.40	(429.59)
1981	1408.81	(429.41)	1408.52	(429.32)

**Figures provided by the Water Resources Branch.

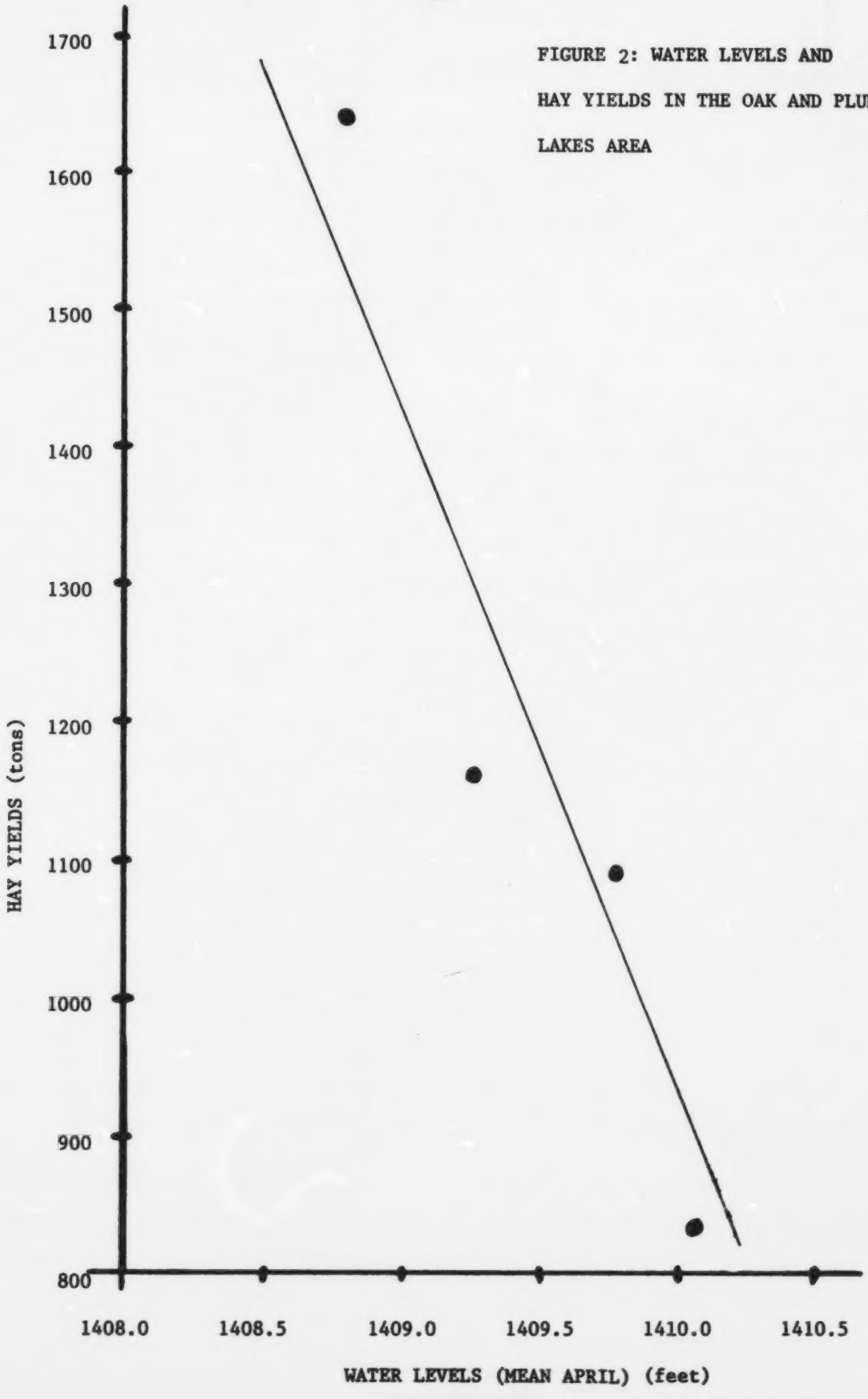
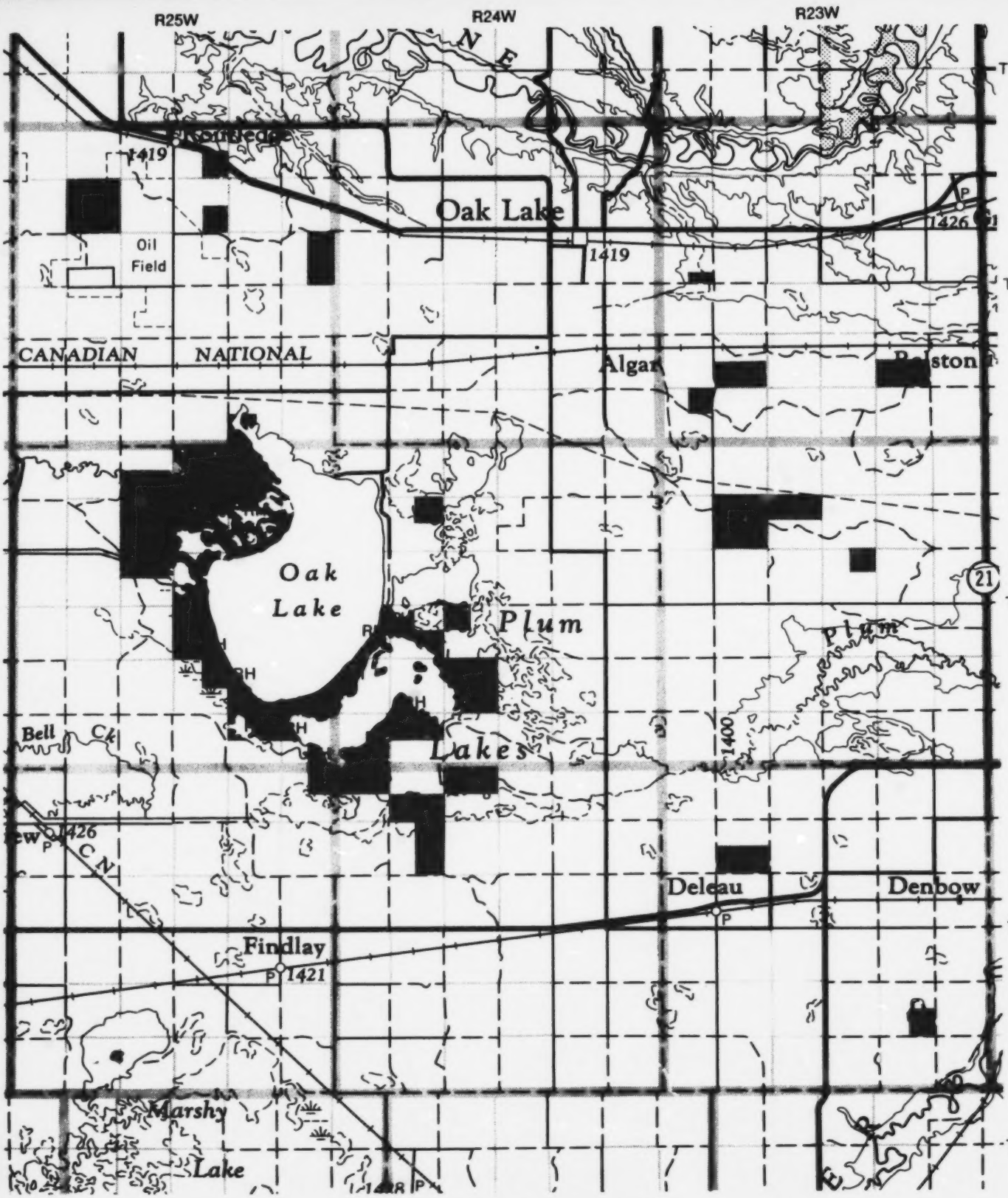


FIGURE 2: WATER LEVELS AND HAY YIELDS IN THE OAK AND PLUM LAKES AREA



Crown Lands and Leasing Arrangements
in the Oak and Plum Lakes Areas (1982)

- crown land
- FL - forage lease
- RH - renewable hay permit
- CH - casual hay permit

Cartography by: Surveys and Mapping Branch, Manitoba 1983

FIGURE 3

The proponents of low water levels obtain great quantities of hay out of the dry wetland basins when conditions are optimum. Whitetop, one of the grasses grown in the slough bottoms, is particularly valuable as a cattle feed if hayed at the proper time. Several species of sedges thrive in these dry wetlands. People haying in the bottom of these wetlands obtain not only enough hay to feed their own livestock over the winter, but to sell to other farmers and thus supplement their income.

The Commission does not intend to become involved in determining which of the two factions in the agricultural community is more correct, but a few facts must be stressed:

a) Farmers haying the meadows adjacent to the wetlands claim that quality of the hay is more important than quantity.

b) If the marsh bottoms are to be utilized for hay production, then the lowered watertable will result in negligible hay production in the upland meadows and no muskrat trapping.

c) There is a distinct correlation between low water levels in the Oak and Plum lakes wetland complex and the fall of water levels in wells and dugouts. The necessity of digging dugouts to replace the natural water supply was also closely tied to low water levels in Oak and Plum lakes. The danger of a gradually declining watertable was stressed and a concern of many.

d) Although grain production is not a major agricultural use locally to some farmers it is a major land use. Some of these stressed the value of a high watertable in producing a good crop on such light soils.

e) Some farmers stressed their reliance on production of hay on Crown lands to make their farming operations viable.

f) There was a general agreement that the agricultural community opposed expropriation of land.

g) Frequently there was a plea for the Commission to take a strong position in making their recommendations.

h) Farmers stressed, that although the agricultural community was divided over the desired level at which the water should be held, they were the only group earning their livelihood in the wetland complex and therefore their concerns should be held above the interests of recreational and wildlife groups.

We urge everyone to read the extracts from the various presentations given at the hearings. If one particularly reads the quotes of Messieurs Lloyd Atchison, Blaine Canning, Lloyd Hatch, Ross Gabrielle, Leonard Logeot, Victor Logeot, C.O. Meighen and Philip Francis, one will readily realize the quandary facing the Commission in not only resolving the conflicting interests of the major factions in the agricultural community, but then also taking into account the interests of other groups.

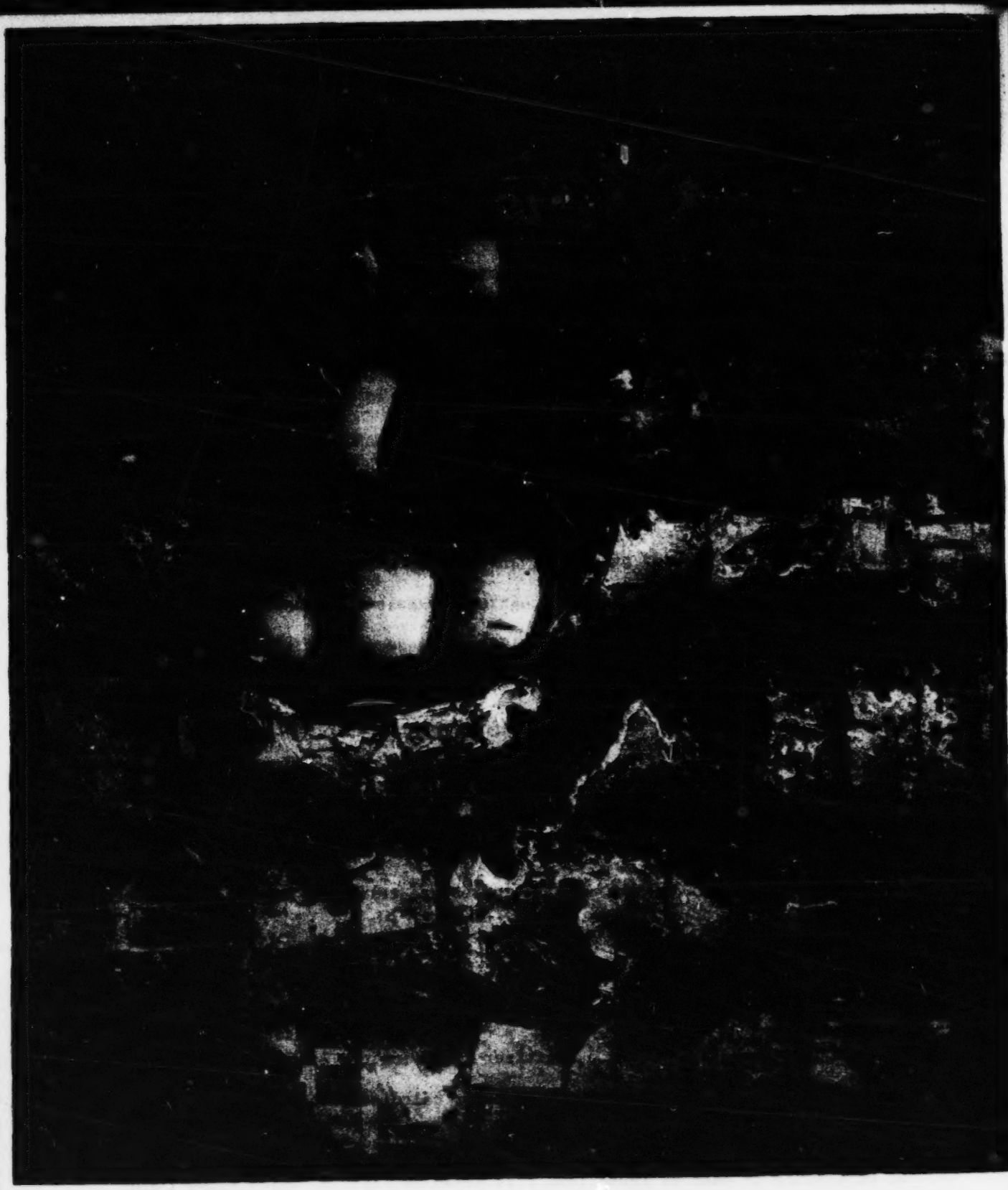
VI. WATER LEVELS

Many briefs suggested that contour maps should be produced. This proposal was rejected by the Commission because various estimates indicated that it would be too costly. An attempt was made to determine the amount of land flooded at a high, middle and low level of water on the Oak and Plum lakes wetlands complex.

Surveys and Mapping Branch provided the Manitoba Water Commission with three air photos representing three different water levels of Oak Lake. These figures 4, 5 and 6 demonstrate to what extent flooding occurs at each of the water levels.

Seepage is negligible through the dyke at Oak Lake according to Mr. A. Kohuska who in a September 3, 1981 memorandum wrote that for the case where Plum Lake is at an elevation of 1406, "I calculated seepage losses of 254 acre feet per year. Since Oak Lake has a surface area of about 10 square miles, this translates to a drop in the water surface of about 0.04 feet per year. When Plum Lake is at elevation 1408 the computed seepage losses were about 126 acre feet per year or a drop in the water surface of 0.02 feet per year. The conclusion is that seepage losses are trivial. Therefore, drawdown of the Plum Lakes will not have a noticeable effect on the level of Oak Lake.

The actual calculation of the amount of area covered by water was done by a digitizing process. This process involves the use of a packaged program in a computer. Using a digitizer following the exact boundaries of water on the aerial photograph, the computer calculates the area that is covered by water. The results of this process are summarized in Table 5. The frequency of occurrence of each of these levels is given in Table 6, which shows these figures to be representative of the low, middle and high water levels.



Oak Lake Water Level - 1409.66 feet A.S.L. (429.67 metres) (June 30, 1982)

Cartography by: Surveys and Mapping Branch, Manitoba 1983.

FIGURE 4:

Oak Lake Water Level - 1409.83 feet A.S.L. (429.72 metres) (July 18, 1978)

Cartography by: Surveys and Mapping Branch, Manitoba 1983.

FIGURE 5:

Oak Lake Water Level - 1410.61 feet A.S.L. (429.96 metres) (May 28, 1974)

Cartography by: Surveys and Mapping Branch, Manitoba 1983.

FIGURE 6:

TABLE 5

COMPARISON OF WATER COVERAGE AT 3 WATER LEVELS

Date	Oak Lake Water Level feet	(meters)	Total area examined* acres	(hectares)	% area land**	% area water**
June 30/82	1409.66	(429.66)	65,842	(26,646)	79.6	20.4
July 18/78	1409.83	(429.72)	65,919	(26,677)	71.0	29.0
May 28/74	1410.61	(429.95)	66,163	(26,776)	56.6	43.4

* Total area examined includes Oak and Plum lakes and adjoining marshes. Surveys were taken over the same approximate area on all three years.

** These figures were obtained from aerial photographs using a digitizing process. (This process involves using a packaged program in a computer. By following the exact boundaries of water on the aerial photograph, with a digitizer, the computer calculates the area that is covered by water.)

NOTE: In 1982 about one-fifth (20.4%) of the area examined was covered by water. In 1974 approximately two-fifths (43.4%) was covered.

TABLE 6

FREQUENCY OF OCCURRENCE OF THE THREE

REPRESENTATIVE WATER LEVELS*

Water Level feet	(meters)	Probability of the maximum mean daily level being equal to or exceeding this level in any year
1409.66	(429.66)	77%
1409.83	(429.72)	71%
1410.61	(429.95)	42%

* These figures provided by Water Resources Branch.

VII. DISCUSSION AND SUMMARY OF USES AND CONFLICTS

Previous studies undertaken have indicated that the Oak and Plum lakes marsh complex is an important ecological unit to all of Manitoba. The proposal for the development and management for this area prepared in 1975 recommends Plum Lake should be operated at the 1409 foot (429.46 meter) level.* Under this regime the net benefits would accrue to wildlife. According to the 1975 report agricultural benefits below the Ducks Unlimited Dam would nearly balance the agricultural losses above the dam.

In a study done by Robertson** it was shown that lower water levels had a detrimental effect on wildlife in the Maple Hunter Marsh complex (located 4 miles or 6.5 kilometers southwest of the Oak and Plum Lakes area) by reducing the waterfowl population. It is the opinion of the Commission that because of similar conditions in the Oak and Plum lakes area, similar results would occur in this study area.

The Commission concurs with evidence presented at the hearings and with information provided by the Wildlife Branch that reduced water levels are detrimental to furbearers. As a result of the water freezing to the bottom of the wetland during winters of low water levels, there is a heavy winterkill of muskrats. Such conditions also result in the total annihilation of the fish population. Even with water depths that do not freeze to the bottom, it is imperative that there is a substantial depth of oxygen-rich water under the ice or there will be a fish die-off.

As mentioned earlier in the report, the Commission notes that the hay crops in the low lands are limited by high water levels which restrict

* Plum Lakes A Proposal for the Development and Management, August 1974 revised September 1975, Department of Renewable Resources and Transportation Services.

** Summarized by the Wildlife Branch in a memo - November 1982 from L. Colpitts.

access. The Commission recommends no improvements to access be made but would allow works in progress to be completed.

The Commission found a lack of specific information related to resource uses in the area. One of the points that continued to surface was the lack of information on which lands were affected by flooding. Surveys to design contour maps of the area would have been too costly for this study. It was decided by using air photos taken at various points in time, some indication of the effects of flooding could be given. Thus Surveys and Mapping Branch provided the Manitoba Water Commission with three photos representing high, mid and low water levels as earlier described in this report. From these maps one can judge the effects of altering the water level regime of Oak Lake and Plum Lakes.

VIII. RECOMMENDATIONS

The objective of the Commission's recommendations is not to resolve all of the problems but rather to attempt to reduce the effects of extreme fluctuations by providing more control of the flow of water over the whole year and thereby provide some stability to water levels. Obviously, the vagaries of nature are such that extreme events, such as the high water levels of 1976 or the low levels of 1982, are extremely difficult to offset. From comments made during the public hearings the rural community lives with and accepts these events.

It is not logical to go back and undo those adjustments to the natural environment that have in essence become part of that environment. The cultural landscape has evolved around the modifications. Therefore, it would be difficult and very expensive to go back. On the other hand, further unregulated intrusion of human activity onto the natural landscape is not desirable, primarily because there appear to be critical points at which natural environments will continue to deteriorate regardless of any remedial action that could be taken. It would appear that some of these critical points are being reached in the Oak and Plum Lakes area. Unfortunately there are no definitive studies that would give clear guidelines as to those critical points, and as a result a moratorium on agricultural expansion in the marginal areas should be established.

The Commission is of the opinion that because this is a unique wildlife area, efforts should be directed towards its conservation and enhancement.

The Manitoba Water Commission recommends the following:

1. A management board, known as the Oak and Plum Lakes Management Board, be established to manage the water levels in the Oak and Plum Lakes area, and that it be representative of the various interest groups, namely:
   (a) A Chairman - appointed by the Minister of Natural Resources,
   (b) Agricultural community - (2 representatives),
   (c) Recreational interests - Cottage Owners Association (1 representative),
   (d) Rural Municipality of Sifton - (1 representative),
   (e) Wildlife interests - (2 representatives - 1 of whom shall be from Ducks Unlimited),
   (f) Educational community - University of Brandon (1 representative), and
   (g) Water Resources Branch - (1 representative - ex officio).

2. The Oak and Plum Lakes Management Board endeavour to maintain the level of the Plum Lakes within a range of 1407 - 1409 feet (428.9 to 429.5 meters) above sea level (A.S.L.). Presently the full supply level of the Kansas City Oak and Plum Lakes Dam is 1407.86 feet A.S.L. (429.1 meters) and at levels above this the dam will act as a weir.

3. The Province of Manitoba should acquire control of the Kansas City Oak and Plum Lakes Dam. This dam should be refurbished and made operational in order to maintain water levels.

4. That the carrying capacity of Plum Creek be increased to permit greater control of the water levels in the wetland complex after the Kansas City Oak and Plum Lakes Dam is made operational.

5. The Board should establish a monitoring program to determine the suitability of the range 1407 to 1409 feet A.S.L. (428.9 to 429.5 meters), a summer level of 1407 feet A.S.L. (428.9 meters), and the date of drawdown.

6. The Board should consider the tentative selection of more than one level within the regulation range (1407 to 1409 feet) (428.9 to 429.5 meters) in order to explore the practicality of various levels with respect to costs of outlet works, channel excavation (Plum Creek) and downstream impact from the increased flood releases.

7. The Board review all records relative to water levels, flows and
   (a) developments since 1973 within the Oak and Plum lakes wetland complex, and
   (b) determine the relationship between ground water levels and the water levels in Oak and Plum lakes.

8. The Board's activities under recommendations 5, 6 and 7 (above) extend over a five-year period. The Board may make interim recommendations to the Minister with respect to water levels and any required physical works.

REFERENCES

Hildebrand, Wayne, Land Use Conflicts in the Plum Lakes Area of Southwestern Manitoba, Natural Resource Institute, University of Manitoba, Winnipeg, Manitoba. April, 1982.

Longley, R.W., The Climate of the Prairie Provinces, Climatological Study No. 13, Environment Services, Toronto, Ontario. 1972.

Manitoba Department of Renewable Resources and Transportation Services, Plum Lakes A Proposal for the Development and Management, September, 1975 (revised).

Plum Lakes Study Committee Revised Report on Plum Lakes Regulation Study, prepared for Water Resources Branch, Department of Mines, Resources and Environmental Management, March, 1972.

Water Control and Conservation Branch, Highways Department, Plum Lake Regulation Study, August, 1967.

PERSONAL COMMUNICATION

Wildlife Branch, Department of Natural Resources, L. Colpitts and R. Jones.

Fisheries Branch, (Brandon) Department of Natural Resources, Bill Howard.

Water Resources Branch, Department of Natural Resources, T.E. Weber, N. Mudry, L. Whitney.

Parks Branch, Department of Natural Resources, staff.

Department of Agriculture, staff.

Received by the Manitoba Water Commission March 22, 1982

APPENDIX A

PLUM LAKES

TERMS OF REFERENCE TO THE MANITOBA WATER COMMISSION

Land use conflicts in the Oak-Plum Lakes area and requests for action from local and regional residents have been before the provincial government since at least the 1950's.

The two main interests to be reconciled in the Plum Lakes area are agriculture and natural resources; wildlife and outdoor recreation in particular, but also including fisheries and parks.

The Nature Conservancy, the Water Table Preservation Association, the Provincial Wildlife Branch, the Canadian Wildlife Service and Ducks Unlimited would like to proceed with the wildlife development.

Landowners on Plum Creek desire improved drainage. Landowners in the Plum Lakes area are strongly divided on what should be done. Some want low levels on Plum Lakes to facilitate haying, other higher water levels to maintain ground water levels for water supplies.

The Plum Lakes area has potential for fish production. Development and forms of land use should recognize fish access and habitat requirements.

The Oak Lake Cottage Owners Association is concerned that manipulation of Plum Lakes levels will affect levels on Oak Lake. The members contend that any development plan should consider outdoor recreational use in the Oak Lake and Plum Lakes area.

Ducks Unlimited constructed a water level control structure at the outlet of the Plum Lakes in 1958, but has not been able to operate it because two landowners refused to sign the easements necessary for the issuance of a license to operate the structure.

A Federal-Provincial development plan for the area was prepared in 1975 but was never implemented.

Given the above circumstances and others to be identified by the Manitoba Water Commission, the Commission is directed by the Minister of Natural Resources as follows:

1. The Commission, having regard to the needs of the various interests which are or may be affected by the levels of the Plum Lakes now and in the foreseeable future, will determine and recommend to the Minister an acceptable plan for the management of the water resources in the Plum Lakes area.

2. The Department will make available to the Commission required background data as well as undertake the necessary field surveys and technical investigations which the Commission may require during the course of its study.

3. The Commission will consult with various Departments, Ducks Unlimited, and the Canadian Wildlife Service as well as convene public hearings as it deems necessary to enable local organizations to present their positions during the development of the proposal.

4. The Commission will render a final report to the Minister as soon as it is practicable to do so.

_____

Al Mackling,
Minister.

APPENDIX B

KEY QUOTES FROM THREE PUBLIC HEARINGS

Dr. Roger Smith

- of Brandon University and a member of an informal group called the Calumet Nature Foundation.

"I believe that the Oak Lake-Plum Marsh complex is particularly valuable in that it has unique values for wildlife, for research education, recreation, agriculture, hydrology and archaeology, and I suggest that future generations can best be served by preserving this complex in the form of a marsh with fluctuating water levels. We also suggest that a cooperative responsibility for preserving and maintaining the marsh may be the best answer in the long run. If such a cooperative responsibility were established then the executive of the managing trust should consist of a majority of people from the local community with support from interested and qualified people from further afield.

"Although the water level should fluctuate, the maximum and minimum levels might well be controlled, but research is needed to evaluate the effects of differing water levels and controlling water levels. We also suggest that no expropriation of privately owned land is necessary and finally I envisage a three-fold division in this wetland complex. First of all we think there should be a small area set aside for research, another small area needs to be set aside for interpretive functions, and finally the majority of the marsh, a large area, should be set aside for the preservation of natural beaches, plus such agricultural activities as are compatible with the basic ecological pattern of the marsh."

Mr. Cecil Huff

- Oak Lake Cottage Owners Association

"We feel that if you take away Oak Lake as a tourist attraction, you take away considerable income to Manitoba and the business community of western Manitoba..... maintaining a recreation area in as many parts of the province of Manitoba is a must. ..... during the summer months literally thousands of people spend many enjoyable hours at the lake; fishing, hunting, boating and waterskiing.

"During the past few years the water level of Oak Lake has been low; allowing it to drain even further would completely put a stop to enjoyment of fishing, boating, swimming and waterskiing.....

"Our organization urges this committee to recognize the importance of maintaining the level of Plum Lakes at not less than 1408; and Oak Lake at 1410."

Mr. Rod Fowler

- Ducks Unlimited

"There's no doubt that Plum Lakes is one of the best marshes in southern Manitoba, and perhaps in all of Manitoba. It's in a very fertile region; its production capability is very high. It's important, as a marsh, even more so now and in the future because of declining marsh habitat throughout agro-Manitoba..... But the marsh is not only important as a production area for waterfowl, but is important as a moulting and staging area as well.....

"..... many people have expressed concern with reduced ground water levels and drying out of wells and dugouts. That must be considered in any plan for the marsh.

"I can say 1409 would be a very good wildlife level..... Gut reaction would be that a 1408 water level, although not the best, would be acceptable for wildlife. If you get much lower, you are going to potentially get much of the marsh overgrown, with vegetation, which does not provide a good marsh for waterfowl or muskrats if it's too shallow; not only duck production will be seriously curtailed but the waters will be too shallow and it will not over-winter muskrats."

Mr. Conrad McClure

- Brandon Wildlife Association

"It follows then that our association would be in favour of the 1975 management proposal to make Oak and Plum Lakes a wildlife management area of some 16,000 acres, under joint federal and provincial management. However, because we are cognizant of the agricultural problems involved and the need for all interested parties to get along and come to an accommodation, we are in full support of the controlled drainage proposal as quoted and explained in the report of the Water Table Preservation Association of Oak Lake, dated March 22nd, 1982."

Mr. C.O. Meighen

- Water Table Preservation Association

"The Water Table Preservation Association has 32 members who operate approximately 40,000 acres of land in the immediate area around the marsh..... They are farmers and ranchers basically, and as such their primary interest is their livelihood, that being farming.....

"Our association proposes a more controlled drainage, and that the run-off from Plum Lake would be controlled by a series of weirs to let the water escape more gradually, and to maintain the water level in the Plum Lakes at 1408 feet above sea level whenever possible....

"The local farming experience shows that the best hay crops have been harvested in years when spring flooding has been followed by a gradual drop in water level to about 1408 by July.....

"The association is convinced that water level in the Plum Lake complex affects ground water flows, and that low levels in the marsh result in low levels in dugouts and wells for a distance of up to six miles..... A level of 1408 maintained during the winter produced nearly optimal conditions for muskrats.....

"Our association states that when the Plum Lake marsh level has been as low as 1406 in past years, there has been area problems, with weeds spreading onto mud flats, with blowing dust, and salinity from dried out surfaces, and of course all of you are aware of the botulism problem that has occurred in the marsh with the dry years."

Mr. Victor Logeot

- local farmer

"During the last three years the snow melt did not produce enough water to flow over the dam.....

"The building of the Pipestone diversion into the lake enables the water from the Pipestone Creek to rush into the lake. With the water comes large amounts of phosphorus and nitrogen, as well as pesticide and herbicide residues, which have washed from the farmlands. Because of the high concentrations of nitrogen and phosphorus, weel and algae growth are much greater than normal. This at first created a fertile ground for fish and other wildlife. However, it

is a two-edged sword. In winter, this profusion of plant life decays, using up the oxygen supply and killing the fish. The algae causes a stink and dirty water.....

"... we as farmers and landowners are very skeptical of ideas about managing the marsh because of these schemes. We feel our active participation is vital in protecting our heritage. We want the Plum Lakes to be left alone; we don't need dams and dykes or ditches to interfere with the natural cycle....

"... wetland slough hay is often overlooked as a feed. The protein is greater than brome if put up in the correct stage..... The grasses in the Plum Lakes have a high food value, partly because of the nitrogen and phosphorus introduced by spring flooding...."

Mr. Robert Masson

- a local farmer representing Oak Lake Trappers Association

"Oak Lake Trappers Association is an organization of 32 traditional trappers, both young and old, both native and white, that was formally formed in the winter of 1979 - 1980 in order that the fur resource in the Oak and Plum Lakes basin could be farmed and managed, instead of mined as it had been prior to that time.....

"The Oak Lake area have had a long reputation amongst the furriers as being an area capable of producing an excellent muskrat pelt.....

"In summary, the Oak Lake Trappers Association would like to recommend, number one, that a water management scheme of 1408 above sea level at the Ducks Unlimited Dam be adopted by the Provincial Government for the Plum Lakes wetlands complex. Number two, that the scheme be adopted with no undue delay. And number three, that as soon as the control structure is in operation, keeping the water level constant in the lakes, the Plum Creek should be cleaned out

and straightened to take care of excess water in as quick a manner as needed. Number four, that a water management scheme be effected by means of easements wherever possible, and five, that the Crown lands in the Plum Lakes and Oak Lake area be left as a fur management area, with special permit trapping only, as it now is. Number six, if a board or committee is formed for the supervision of the managing of the Plum Lakes, then a representative or representatives from the Trappers Association must be included in that board or committee."

Mr. G.R. Jasper

- Rural Municipality of Sifton

"We have no figures on what we receive from the hay leases; it comes in a lump fund, as I understand it, from the government. But I do have a breakdown; the farmland in the area, the total assessment of farmland is $191,760.00, which is 79 per cent of the total assessment of the area; and $25,433.00 were the tax collections in 1982; and for the Crown, the assessment was $26,090.00 and formed 10.8 per cent of the assessment; and $732.28 was collected."

Mr. Philip Francis

- farmer

"I feel the best water control in the Plum Lakes area would be to have adequate drainage through Plum Creek, making sure that the water would not be drained too low. By this I mean that the floor of Plum Creek be no lower, anywhere along its length, than is necessary to drain water from the land used for haying operations, by the time it's ready for haying anywhere

along its length; but be large enough to carry heavy spring flows.....

"... Agriculture is the one most important aspect of the area and should be considered above all others. This is what feeds the people of this country. The farmers and ranchers will live with all forms of wildlife; they have proved this over the years. But let us not give ducks, geese and muskrats an unfair advantage over agriculture.

"... When the Plum Lakes and Oak Lake are very high, this can and does cause the water to backflood through the old Pipestone Creek north of the diversion channel - flooding many hundreds of acres along the course of the old Pipestone Creek.....

"It would seem that we are now forced to look at getting more water through our system faster, before looking at control of that water within our system.....

"I wonder if we should not stop our interference with nature now, and consider future generations who might want something different than what we think is best for us now."

Mr. Blaine Canning

- local farmer

"I'm a farmer, and I farm with my father; and my concern in this region is that Plum Creek does run through our land.....

"I feel that the municipal government, the Sifton municipal government, is actually unqualified to make decisions in this area; I'm not saying they don't make proper decisions in a lot of the things that they do, and the road is one of the examples that I happen to not support; but the trial and error method, attempt at water management which has happened in the past, with the

dredging that has been done, and with this road, I just don't feel that we can let this go on anymore....

"Somebody in the know has to call the shots. And I feel very strongly that our municipality are not water resource experts."

Mr. Lloyd Hatch

- local farmer

"As long as we have water in this low ground, we can grow good crops....

"... it takes you two or three years to get the old marsh bottom out of that area, when it goes dry first, unless you burn it out, ... and then after we get one or two years, because there isn't enough moisture .... the slough bottoms grow up to alkali weed and your hay deteriorates. The third year it starts to deteriorate fairly bad. From then on it goes right back and if we don't get this land flooded again in five or six years, then you're right back to nothing but alkali weed....

"... We went out and we trapped during calving time .... we had caught 400 rats; they sold at $5.00 a head right off the farm..... that was $2,000.00 we made in 10 days. That's not bad picking with maybe fifty, sixty dollars worth of traps or stretchers involved."

Mr. Lloyd Atchison

- local farmer

"I'm speaking on behalf of the Tri-Lakes Co-op. We are the succeeder, I guess, of the Oak and Plum Lakes Farmers and Ranchers Association....

"It has been suggested that a control level of no less that 1408 is desirable for Plum Lake..... That high level would be unacceptable. Thousands

of acres would be lost in hay production.... It is very important to begin harvest of crops in these areas in early July .....

"Soil salinity has not received enough attention. In Wayne Hildebrand's study entitled Land Use Conflicts in Plum Lakes, the following can be seen .... 'Soil salinity is associated with high water levels and a corresponding high water table (Robertson 1967), especially west of Plum Lakes (Water Resources 1972). The number of areas prone to salinization has not been determined. In a series of publications, The Health of the Land, Ducks Unlimited 1980 have stated the cure and the cause of salinity. Soil salinity problems result from water movement through the soil. When subsoil moisture containing dissolved salts moves upwards and evaporates, the salts are left on the surface. As the process continues, the salt concentrations increase until white deposits begin to show and crop yields drop. The solution to salinity is as straightforward as the cause; prevent the upward movement of salt-laden moisture into the soil surface.' As stated above, we do not know the number of acres that are prone to salinity, but there have been complaints from the farmers in the R.M. of Pipestone, a distance of five miles west of the lake....

" ... Decisions must be left to those who are directly affected, and are local representatives on the local government. The local government is far more sensitive to local concerns than is someone far removed from the area....

" We do not want Ducks Unlimited involvement; they have caused many problems in this country. Although they have done satisfactory work for individuals, when it comes to larger projects where thousands of acres are involved, we feel they tend to be arrogant and insensitive towards concerns of the individuals.....

"The cattlemen of the area are very dependent on feed supplies that the Plum Lakes area provides. Some would lose the only source of hay supply they have if the lake was controlled at high levels. Their livelihood is almost fully dependent upon feed supplies.... We would prefer to have the area free of structures that control water levels. Creek maintenance, such as removal of beaver dams and sand bars is very necessary from time to time."

Mr. Don Glays

- Manitoba Wildlife Federation

"I think that the Hon. Brian Ransom summed up the credibility of our organization recently during the debates on the estimates, when he said ..... 'I don't think there was another group that represented such a broad base as the Manitoba Wildlife Federation.' The Minister responded by saying in respect to his comments about the Manitoba Wildlife Federation, 'I have had the opportunity already to meet with a number of sections of the Manitoba Wildlife Association and all of them have been most helpful to me.' That from the Hon. Al Mackling, the Minister of Natural Resources.

".. We strongly urge this Commission to recommend a level of minimum 1408 above datum, in order that the area in question remain as one of the finest prairie wetlands in Canada.

"If we want to solve the botulism problem at Oak and Plum Lakes, we should set the water level, we recommend 1408, but set the water level and try to maintain it as close to that as possible....

"It was made quite clear to us at Brandon and at Oak and Plum Lakes that the most advantageous level would be 1408. Equally important is the view that there should be no straightening or improvement along Plum Creek which

would cause drainage, because the Town of Souris is on record as saying that their water supply would be loaded with extra sedimentation.

"Hence the need for this Commission to make a steadfast recommendation. Your decision will have to reflect the needs of the greatest number of citizens of this province - not only today, but we must consider the future as well. And I'd like to borrow the slogan of the current National Environment Week Committee: 'We don't inherit the earth from our forefathers; we borrow it from our children.' If we allow areas and marshes like Oak and Plum to be lost, I suggest they're lost forever and our children may never know the joys of recreation, the benefits of trapping and fishing, and the excitement of nature."

Mr. Lloyd Mayeda

- Nature Conservancy of Canada

"In 1979 the Conservancy purchased from Ed and Edith Jiggins - and still owns - 12 quarter sections in the Plum Lakes area. Money for the purchase came via an interest-free mortgage from Ducks Unlimited Canada, and the first two payments on that mortgage have been made and the third is due in December of 1982. If you don't mind, I would like to emphasize the fact that it was a Ducks Unlimited interest-free mortgage that we are paying back in a normal business-like way, and that it was not money that was given to us by Ducks Unlimited.

"Funds to repay the mortgage have been raised from a variety of sources, including the Murphy Foundation, S.C. Johnson and Son Limited, the Canadian National Sportsman's Fund, Xerox Canada Incorporated, and a number of individuals .....

"We are concerned about the maintenance of our property as a sample of the pre-settlement prairie and parkland ecosystem characteristic of this part of Manitoba....

"A water management plan should be developed and implemented, taking into consideration the benefits to agriculture, wildlife and recreation. A contour study, study of soil characteristics, an analysis of the effects of various water levels on ground water supply aquifers and the water table, are required. From our point of view, some management of water levels is necessary, since human disturbances - both above and below, as well as within the Plum Lakes area - have altered the natural water flow and run-off patterns to the extent that lack of knowledgeable intervention will only accentuate and prolong the present problems.

"The Nature Conservancy of Canada is dedicated to the preservation of natural areas - but not at the expense of alienating the people within the communities where our projects are located."

Mr. Pat Rakowski

- Canadian Wildlife Service

"A small proportion of the North American white-fronted goose population migrates through southwestern Manitoba. In 1968 Dave Hatch reported that 27,000 white-fronted geese used the area, and this represented almost the entire white-fronted goose population that migrated through Manitoba that year ....

"Low water levels on Plum Lakes can result in severe outbreaks of botulism. An outbreak in 1980 resulted in the death of 12,000 ducks. This loss of waterfowl might have been prevented with adequate water level management...

"There are nesting colonies of eared grebes, black-crowned night herons, Franklin's gulls...

"... We encourage the regulation of water levels at a minimum of 1408 to optimize benefits to wildlife and agriculture; however, our present information indicates that 1409 would provide the most benefits to wildlife. Unless the water problem at Plum Lakes is resolved, both agriculture and wildlife interests will suffer. We encourage the early resolution of these issues, to the mutual satisfaction of both interests, and we discourage further indecision...

"... We recommend that (1), an accurate contour map of the Plum Lakes area be prepared; (2), that the study of the Plum Lakes hydrology and its effects on the ground water hydraulics in the Plum Lakes area be defined in detail; and (3), that a water management plan based on the above information be designed and implemented for the benefit of wildlife and agriculture."

Mr. Ross Gabrielle

- local farmer

"... We feel that agriculture should have priority over wildlife because there are more people earning their livelihood through agriculture than in trapping and hunting, and recreation. We feel that water should be allowed to flow freely and unrestricted by removing obstacles from Plum Lake to the Souris River, and Plum Lake to be left in its natural state."

Mr. Wayne Neily

- Manitoba Naturalists Society

" The Oak Lake-Plum Lakes marsh complex is recognized by many as being one of the finest wetland areas in Canada... Even the most ardent agriculturalists must agree that not all Crown lands must be leased for hay or crop production,

but that some areas should be retained to allow our co-inhabitants of the region - the wildlife species - to survive. With a little thought, they would also recognize that each wild species has specific requirements, and that if all land suitable for agriculture were drained, many of the species displaced would not be able to relocate, or even survive, in areas unsuitable for agriculture. They would simply be lost... No more channelization of Plum Creek should be permitted, and the existing control structure should be put into use without further delay.

"It appears that there is a need for more detailed study, both of the topography and of the biota and their requirements, and I might add from what I heard this morning of the drainage and soil conditions in the area; and we would recommend that these be undertaken as part of the development of the master plan for the management of this marsh."

Mr. Leonard Logeot

- local farmer

"Well, our organization speaks for approximately 40,000 acres in our letter to the Souris Water Commission there, and it involves land within two to three miles of the Plum Creek area itself - - some right against it, some farther away. We feel that it all has a direct bearing on our water table within this area.

"I think it has been proven that when there is a sufficient amount of water, there's very little hay imported into the area; when its fairly dry in the marsh, there's a fair bit imported in there....

"Well, in 1980, in our organization there was - I just haven't got the figure right here, but it's somewhere in the neighbourhood of 15 or more dugouts deepened or dug in 1980....

"We mentioned that we do not want the R.M. of Sifton to have full control over the water level or the management of whatever proposal there is....

"... The minimum control that we figure is beneficial to our organization, agriculture, is 1408.....

"No, we feel 1408, it should be allowed to come down to there as soon as possible, then try and maintain there as close to that level as possible.

"All in our organization live within one to three miles of the Plum Creek...

"... We see our dugouts go up and down, fluctuate as the marsh does...

"... Well, we had a discussion at our meeting, and we arrived at that figure because agriculturally, we felt it was the most beneficial level, and looking further with other groups, they seemed to think that they could live with that, and we felt that as long as that's our, we're benefiting the most, if we could get the rest to come in with us, that maybe that was a good level to maintain it at."

POOR

QUALITY

ORIGINAL